The Boeing Company
P.O. Box 3707
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OFFICE OF POLLUTION
PREVENTION AND TOXICS

Contains No CBI

November 11, 1993

Document Processing Center (TS-790)
Attn: Section 8 (e) Coordinator
Office of Toxic Substances
U.S. Environmental Protection Agency
401 "M" Street, S. W.
Washington, D.C. 20460

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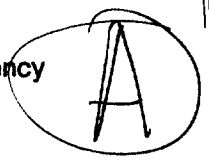


Re: TSCA Section 8 (e) Report from The Boeing Company

ATTENTION SECTION 8 (e) COORDINATOR

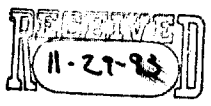
The Boeing Company ("Boeing") hereby submits, pursuant to Section 8 (e) of the Toxic Substances Control Act ("TSCA"), toxicity results obtained from fish bioassay testing of prepreg materials conducted for waste disposal determinations. In addition, Boeing seeks guidance on future submittals of this type.

It is unclear whether the attached information is required to be submitted to the U. S. Environmental Protection Agency ("EPA") under TSCA Section 8 (e). The EPA guidance document (June 1991) for determining the applicability of Section 8 (e) reporting requirements contains standards for significance based on animal studies such as mammals, but not fish. Boeing is unaware upon what standard, if any, EPA relies to determine "substantial risk of injury to health or the environment" for reporting of fish bioassay study results. Boeing would appreciate Agency guidance regarding this point.

Boeing is submitting the attached information because two of the test results exceeded fish bioassay toxicity levels established by the Washington State Department of Ecology ("DOE") for purposes of characterizing the substance at the time of its disposal as "Washington State dangerous waste."[1]

A waste material would be designated a dangerous waste in the State of Washington if greater than 11 cumulative deaths out of 30 test organisms occurred within 96 hours at a concentration of 1000 mg/l. In the instant case, seven prepreg materials were tested. Two prepregs submitted showed 100% mortality of the fish. For two of the other prepregs, the mortality results were 3 of 30 and 9 of 30. These materials are not considered a dangerous waste in the State of Washington. For the remaining three prepregs, there was zero mortality.

By reporting the attached data on prepregs meeting the dangerous waste criteria, Boeing has taken a conservative approach to its reporting requirements. Boeing believes that if fish bioassay results do not exceed Washington State DOE toxicity levels, that Boeing is not required to submit the test results to EPA under Section 8 (e). This means that for the two tests where there were some but less than 11 fish deaths the results would not be reportable. To ensure regulatory compliance with TSCA, Boeing would appreciate EPA guidance on this approach to Section 8 (e) reporting requirements.



21 pgs.

We are including copies of WAC 173-303-101 and 173-303-110 for your information.

Please contact Karen Morris-Fine at (206)-393-4757 for additional information.

The Agency's assistance is appreciated.

BOEING

Karen Morris-Fine

Karen Morris-Fine, Ph.D.
Manager Toxicology/TSCA/Epidemiology
(206)-393-4757 MS 7E-HM

[1]Washington State is authorized by EPA to implement the hazardous waste program under the Resource Conservation and Recovery Act, 42 U.S. D. 6926. Washington State's hazardous waste management program, however, is more stringent than the federal requirements with respect to the designation of regulated wastes. Cf. 40 C.F.R. Part 261, Subpart C with WAC 173-303-070,-101, 102 and - 103.

(c) Toxicity characteristic list. Two levels of concentration are established for the contaminants listed. Any waste containing one or more contaminants with concentrations at or above the EHW threshold shall cause that waste to be designated EHW. Any waste containing contaminants which occur at concentrations at or above the DW threshold only (i.e., no EHW contaminants), shall be designated DW.

TOXICITY CHARACTERISTICS LIST:

Maximum Concentration of Contaminants for the Toxicity Characteristic

Dangerous Waste Number	Contaminant	(Chemical Abstracts Services #)	EHW (mg/L)	DW (mg/L)
D004	Arsenic	(7440-38-2)	500	5.0
D005	Barium	(7440-39-3)	10,000	100.0
D018	Benzene	(71-43-2)	50	0.5
D006	Cadmium	(7440-43-9)	100	1.0
D019	Carbon tetrachloride	(56-23-5)	50	0.5
D020	Chlordane	(57-74-9)	3.0	0.03
D021	Chlorobenzene	(108-90-7)	10,000	100.0
D022	Chloroform	(67-66-3)	600	6.0
D007	Chromium	(7440-47-3)	500	5.0
D023	o-Cresol	(95-48-7) /1/	20,000	200.0
D024	m-Cresol	(108-39-4) /1/	20,000	200.0
D025	p-Cresol	(106-44-5) /1/	20,000	200.0
D026	Cresol	/1/		200.0
D016	2,4-D	(94-75-7)	1,000	10.0
D027	1,4-Dichlorobenzene	(106-46-7)	750	7.5
D028	1,2-Dichloroethane	(107-06-2)	50	0.5
D029	1,1-Dichloroethylene	(75-35-4)	70	0.7
D030	2,4-Dinitrotoluene	(121-14-2) /2/	13	0.13
D012	Endrin	(72-20-8)	2	0.02
D031	Heptachlor (and its epoxide)	(76-44-8)	0.8	0.008
D032	Hexachlorobenzene	(118-74-1) /2/	13	0.13
D033	Hexachlorobutadiene	(87-68-3)	50	0.5
D034	Hexachloroethane	(67-72-1)	300	3.0
D008	Lead	(7439-92-1)	500	5.0
D013	Lindane	(58-89-9)	40	0.4
D009	Mercury	(7439-97-6)	20	0.2
D014	Methoxychlor	(72-43-5)	1,000	10.0
D035	Methyl ethyl ketone	(78-93-3)	20,000	200.0
D036	Nitrobenzene	(98-95-3)	200	2.0
D037	Pentachlorophenol	(87-86-5)	10,000	100.0
D038	Pyridine	(110-86-1) /2/	500	5.0
D010	Selenium	(7782-49-2)	100	1.0
D011	Silver	(7440-22-4)	500	5.0
D039	Tetrachloroethylene	(127-18-4)	70	0.7
D015	Toxaphene	(8001-35-2)	50	0.5
D040	Trichloroethylene	(79-01-6)	50	0.5
D041	2,4,5-Trichlorophenol	(95-95-4)	40,000	400.0
D042	2,4,6-Trichlorophenol	(88-06-2)	200	2.0
D017	2,4,5-TP (Silvex)	(93-72-1)	100	1.0
D043	Vinyl chloride	(75-01-4)	20	0.2

/1/ If 0-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The DW level for total cresol is 200 mg/L and the EHW level for total cresol is 20,000 mg/L.

/2/ Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

[Statutory Authority: Chapters 70.105 and 70.105D RCW, 40 CFR Part 271.3 and RCRA § 3006 (42 U.S.C. 3251). 91-07-005 (Order 90-42), § 173-303-090, filed 3/7/91, effective 4/7/91. Statutory Authority: Chapter 70.105 RCW. 87-14-029 (Order DE-87-4), § 173-303-090, filed 6/26/87, 86-12-057 (Order DE-85-10), § 173-303-090, filed 6/3/86; 84-14-031 (Order DE 84-22), § 173-303-090, filed 6/27/84. Statutory Authority: RCW 70.95.260 and chapter 70.105 RCW. 82-05-023 (Order DE 81-33), § 173-303-090, filed 2/10/82.]

WAC 173-303-100 Dangerous waste criteria. (1) The dangerous waste criteria consist of:

(a) Toxic dangerous wastes, WAC 173-303-101;

(b) Persistent dangerous wastes, WAC 173-303-102;

(c) Carcinogenic dangerous wastes, WAC 173-303-103; and

(d) Dangerous waste characteristics, WAC 173-303-090.

(2) Applicability. Any person who has established that his waste meets any of the dangerous waste criteria is a dangerous waste generator, and shall comply with the applicable requirements set forth in this chapter. A person shall use the dangerous waste criteria to designate his waste pursuant to WAC 173-303-070 (3)(b), or (4), or to exempt his waste pursuant to WAC 173-303-072, or to otherwise establish the risk which his waste presents to public health and the environment.

[Statutory Authority: Chapter 70.105 RCW. 84-09-088 (Order DE 83-36), § 173-303-100, filed 4/18/84. Statutory Authority: Chapter 70.105 RCW and RCW 70.95.260. 82-05-023 (Order DE 81-33), § 173-303-100, filed 2/10/82.]

WAC 173-303-101 Toxic dangerous wastes. (1) Purpose. This section describes methods for determining the toxicity of a waste and the criteria by which a toxic waste shall be designated DW or EHW.

(2) Categorization.

(a) The following toxic category table establishes categories (X, A, B, C, or D) for particular toxicity levels. The X category is the most toxic, and the D category is least toxic. Substances which have toxicity levels below the D category are generally considered to be nontoxic.

TOXIC CATEGORY TABLE

Category	TLm_{96} (Fish) or, Aquatic (Fish) LC_{50}(ppm)	Oral (Rat) LD_{50}(mg/kg)	Inhalation (Rat) LC_{50}(mg/L)	Dermal (Rabbit) LD_{50}(mg/kg)
X	<.1	<.5	<.02	< 2
A	.1 - 1	.5 - 5	.02 - .2	2 - 20
B	1 - 10	5 - 50	.2 - 2	20 - 200
C	10 - 100	50 - 500	2 - 20	200 - 2000
D	100 - 1000	500 - 5000	20 - 200	2000 - 20,000

(b) In order to determine the toxic categories for the constituents in his waste, a person must obtain toxicity data on the constituents either through knowledge he has about his waste, or by obtaining data from the two sources referenced in subsection (3)(a) and (b) of this section, (EPA's Spill Table and NIOSH Registry). If data obtained for a constituent is available for more than one of the toxicity criteria (aquatic, oral, inhalation, or dermal), then the data of severest toxicity shall be used to assign the most acutely toxic category to the waste constituent.

(3) Establishing waste toxicity. A person shall establish the toxicity of his waste or waste constituents by applying his knowledge about his waste, or by using the following information sources or testing methods, or all of these:

3

(a) The National Institute for Occupational Safety and Health (NIOSH) document *Registry of Toxic Effects of Chemical Substances* (Registry);

(b) The United States EPA's regulation 40 CFR Table 302.4 (Spill Table); and

(c) The bioassay testing methods adopted under WAC 173-303-110(3).

(4) Book designation procedure.

(a) A person may use the book designation procedure described in this paragraph only if:

(i) He knows the toxic categories (as set forth in subsection (2) of this section) for the significant toxic constituents in his waste;

(ii) He knows the concentrations of the significant toxic constituents in his waste; and

(iii) He can demonstrate to the department beyond a reasonable doubt that any waste constitutents about which he has limited or no knowledge do not significantly affect the toxicity of his waste.

(b) Equivalent concentration. A person who is book designating his waste shall determine the equivalent concentration (in percent) of the toxic constituents in his waste by using the following formula:

$$\text{Equivalent Concentration}(\%) = \Sigma X\% + \frac{\Sigma A\%}{10} + \frac{\Sigma B\%}{100} + \frac{\Sigma C\%}{1000} + \frac{\Sigma D\%}{10.000}$$

where Σ(X,A,B,C, or D)% is the sum of all the concentration percentages for a particular toxic category.

Example 1. A person's waste contains: Aldrin (X Category) - .01%; Diuron (B Category) - 1%; Benzene (C Category) - 4%; Phenol (C Category) - 2%; Cyclohexane (C Category) - 5%; Water (nontoxic) - 87%. His equivalent concentration (E.C.) would be:

$$\text{E.C. } (\%) = .01\% + \frac{0\%}{10} + \frac{1\%}{100} + \frac{(4\% + 2\% + 5\%)}{1000} + \frac{0\%}{10.000}$$

$$= .01\% + 0\% + .01\% + .011\% + 0\% = .031\%$$

So his equivalent concentration equals .031%.

(c) Toxic dangerous waste graph. To book designate his waste, a person shall use the toxic dangerous waste mixtures graph in WAC 173-303-9906, by finding the equivalent concentration percentage for his waste along the abscissa, finding his total waste quantity along the ordinate, and plotting the point on the graph where the horizontal line drawn from his total waste quantity intersects the vertical line drawn from his waste mixture's equivalent concentration. If the plotted point is in the area marked DW, he shall designate his waste DW; if the plotted point is in the area marked EHW, he shall designate his waste EHW.

(5) Designation from bioassay data. If a person has established the toxicity of his waste by means of the bioassay test methods adopted under WAC 173-303-110(3), and has determined his waste's toxicity range (C category or greater toxicity, or D category toxicity), then he shall designate his waste according to the toxic dangerous waste designation table, below.

TOXIC DANGEROUS WASTE DESIGNATION TABLE

If your waste's toxic range falls in the . . .	And your monthly or batch waste quantity is . . .	Then your waste's designation is . . .
D Category	Greater than 220 lbs. (100 kg)	DW
X, A, B, or C Category	40-220 lbs. (18.2-100 kg)	DW
	Greater than 220 lbs. (100 kg)	EHW

[Statutory Authority: Chapter 70.105 RCW. 87-14-029 (Order DE-87-4), § 173-303-101, filed 6/26/87; 86-12-057 (Order DE-85-10), § 173-303-101, filed 6/3/86; 84-09-088 (Order DE 83-36), § 173-303-101, filed 4/18/84. Statutory Authority: RCW 70.95.260 and chapter 70.105 RCW. 82-05-023 (Order DE 81-33), § 173-303-101, filed 2/10/82. Formerly chapter 173-302 WAC.]

WAC 173-303-102 Persistent dangerous wastes. (1) Purpose. This section describes the procedures for designating wastes which contain halogenated hydrocarbons (HH) and/or polycyclic aromatic hydrocarbons with more than three rings and less than seven rings (PAH).

(2) Concentration determination. A person shall determine the concentration of HH and/or PAH in his waste by either testing his waste as specified in (a) of this subsection, or by the calculation procedures described in (b) of this subsection.

(a) Concentration tests. A person shall test his waste to determine its concentration level as follows:

(i) For HH - By using the testing methods specified in WAC 173-303-110 (3)(a)(v); and,

(ii) For PAH - By using the testing methods specified in WAC 173-303-110 (3)(a)(vi).

(b) Concentration calculations. If a person knows the concentrations of the significant persistent constituents in his waste, and if he can demonstrate to the department beyond a reasonable doubt that any remaining persistent constituents for which he does not know the concentrations would not contribute significantly to the total persistent concentration, then he may calculate the concentration of persistent constituents in his waste as follows:

(i) A person whose waste contains one or more halogenated hydrocarbons for which the concentrations are known shall determine his total halogenated hydrocarbon concentration by summing the concentration percentages for all of his waste's significant halogenated hydrocarbons.

Example 1. A person's waste contains carbon tetrachloride - .009%; DDT - .012%; 1,1,1 - trichloroethylene - .02%. His total halogenated hydrocarbon concentration would be:

Total HH Concentration (%) = .009% + .012% + ...

(ii) A person whose waste contains one or more polycyclic aromatic hydrocarbons with more than three rings and less than seven rings for which the concentrations are

4

known shall determine his total polycyclic aromatic hydrocarbon concentration by summing the concentration percentages for all of his waste's significant polycyclic aromatic hydrocarbons with more than three rings and less than seven rings.

Example 2. A person's waste contains: Chrysene - .08%; 3, 4 - benzopyrene - 1.22%. His total polycyclic aromatic hydrocarbon concentration would be:

Total PAH Concentration (%) = .08% + 1.22% = 1.3%

(3) Designation criteria and quantity. A person whose waste contains persistent (HH or PAH) constituents shall designate his waste according to the persistent dangerous waste table, below, if his monthly or batch waste quantity exceeds 220 lbs. (100 kg).

PERSISTENT DANGEROUS WASTE TABLE

If your waste contains. . .	At a concentration level of. . .	Then your waste's designation is. . .
Halogenated Hydrocarbons (HH)	0.01 to 1.0%	DW
	greater than 1.0%	EHW
Polycyclic Aromatic Hydrocarbons (PAH)	greater than 1.0%	EHW*

* No DW concentration level for PAH.

[Statutory Authority: Chapter 70.105 RCW. 87-14-029 (Order DE-87-4), § 173-303-102, filed 6/26/87; 86-12-057 (Order DE-85-10), § 173-303-102, filed 6/3/86; 84-09-088 (Order DE 83-36), § 173-303-102, filed 4/18/84. Statutory Authority: RCW 70.95.260 and chapter 70.105 RCW. 82-05-023 (Order DE 81-33), § 173-303-102, filed 2/10/82. Formerly WAC 173-302-130.]

WAC 173-303-103 Carcinogenic dangerous wastes. (1) Criteria. A substance which is listed in the National Institute for Occupational Safety and Health (NIOSH) document *Registry of Toxic Effects of Chemical Substances* (Registry), or any other scientific or technical documents, as an IARC (International Agency for Research on Cancer) human or animal, sufficient or limited carcinogen, shall be a carcinogenic substance for the purposes of this section. Any IARC identified substance which is an inorganic, respiratory carcinogen shall be a carcinogenic substance only if it occurs in a friable format (i.e., if it is in a waste which easily crumbles and forms dust which can be inhaled).

(2) Designation. Any person whose waste contains one or more IARC carcinogen(s) shall designate his waste if:

(a) The monthly or batch waste quantity exceeds 220 lbs. (100 kg); and either

(b)(i) The concentration of any one IARC sufficient (human or animal) carcinogen exceeds 1.0% of the waste quantity. Such waste shall be designated EHW, and such designation shall take precedence over any DW designation determined by (b)(ii) or (iii) of this subsection; or

(ii) The concentration of any one IARC sufficient (human or animal) carcinogen exceeds 0.01% of the waste quantity. Such waste shall be designated DW; or

(iii) The total concentration summed for all IARC sufficient and limited (human and animal) carcinogens exceeds 1.0% of the waste quantity. Such waste shall be designated DW.

(c) For designation purposes, any IARC human or animal, sufficient or limited carcinogen that is so rated because of studies involving implantation of the substance into test animals as sole cause for the IARC rating, shall not be carcinogenic. This additional information is available in the IARC *Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans.*

[Statutory Authority: Chapters 70.105 and 70.105D RCW, 40 CFR Part 271.3 and RCRA § 3006 (42 U.S.C. 3251). 91-07-005 (Order 90-42), § 173-303-103, filed 3/7/91, effective 4/7/91. Statutory Authority: Chapter 70.105 RCW. 87-14-029 (Order DE-87-4), § 173-303-103, filed 6/26/87; 84-14-031 (Order DE 84-22), § 173-303-103, filed 6/27/84. Statutory Authority: RCW 70.95.260 and chapter 70.105 RCW. 82-05-023 (Order DE 81-33), § 173-303-103, filed 2/10/82.]

WAC 173-303-104 Generic dangerous waste numbers. (1) Purpose. This section sets forth the dangerous waste number for each of the dangerous waste criteria designations.

(2) Characteristics. A waste which exhibits any of the dangerous waste characteristics, WAC 173-303-090, shall be assigned the dangerous waste number corresponding to the characteristic(s) exhibited by the waste.

(3) Criteria. The following table shall be used for assigning dangerous waste numbers to wastes designated by the dangerous waste criteria or by WAC 173-303-084.

GENERIC DANGEROUS WASTE NUMBERS TABLE

Dangerous Waste#	Dangerous Waste Criteria and Designation
	Toxic Dangerous Wastes
WT01	EHW
WT02	DW
	Persistent Dangerous Wastes Halogenated Hydrocarbons
WP01	EHW
WP02	DW
	Polycyclic Aromatic Hydrocarbons
WP03	EHW
	Carcinogenic Dangerous Wastes
WC01	EHW
WC02	DW

[Statutory Authority: Chapter 70.105 RCW. 84-14-031 (Order DE 84-22), § 173-303-104, filed 6/27/84. Statutory Authority: Chapter 70.105 RCW and RCW 70.95.260. 82-05-023 (Order DE 81-33), § 173-303-104, filed 2/10/82.]

WAC 173-303-110 Sampling and testing methods. (1) Purpose. This section describes the testing methods which may be used in the process of designating a dangerous waste.

(2) Representative samples.

(a) The methods and equipment used for obtaining representative samples of a waste will vary with the type and form of the waste. The department will consider samples collected using the sampling methods below, for wastes with properties similar to the indicated materials, to be representative samples of the wastes:

(i) Crushed or powdered material - ASTM Standard D346-75;

5

(ii) Extremely viscous liquid - ASTM Standard D140-70;

(iii) Fly ash-like material - ASTM Standard D2234-86;

(iv) Soil-like material - ASTM Standard D1452-65;

(v) Soil or rock-like material - ASTM Standard D420-69;

(vi) Containerized liquid wastes - "COLIWASA" described in *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*, SW-846, revised July 1982, as amended by Update 1 (April 1984) and Update 2 (April 1985); and,

(vii) Liquid waste in pits, ponds, lagoons, and similar reservoirs - "Pond Sampler" described in *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*, SW-846, revised July 1982, as amended by Update 1 (April 1984) and Update 2 (April 1985).

(b) Copies of these representative sampling methods are available from the department except for the ASTM standards which can be obtained by writing to:

ASTM
1916 Race Street
Philadelphia, PA 19103.

(3) Test procedures. Copies of the test procedures listed in this subsection can be obtained from the department by writing to the appropriate address below:

For copies of WDOE test methods:

Attn: Test Procedures
Hazardous Waste Section, PV-11
Department of Ecology
Olympia, Washington 98504

For copies of SW 846:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20401

For copies of ASTM methods:

ASTM
1916 Race Street
Philadelphia, PA 19103

The document titles and included test procedures are as follows:

(a) *Chemical Testing Methods for Complying with the Dangerous Waste Regulation*, March 1982, revised July 1983, describing methods for testing:

(i) Ignitability;

(ii) Corrosivity, including the addendum, *Test Method for Determining pH of Solutions in Contact with Solids*, March 1984;

(iii) Reactivity;

(iv) EP Toxicity;

(v) Halogenated hydrocarbons; and

(vi) Polycyclic aromatic hydrocarbons;

(b) *Biological Testing Methods*, the latest revision, describing procedures for:

(i) Static acute fish toxicity test; and

(ii) Acute oral rat toxicity test;

(c) *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846* (the most recent edition and all updates) is adopted by reference. This includes:

(i) Method 9095 (Paint Filter Liquids Test), demonstrating the absence or presence of free liquids in either a containerized or bulk waste;

(ii) Reserved;

(d) 40 CFR Part 261 Appendix X is adopted by reference for the purpose of analysis for chlorinated dibenzo-p-dioxins and dibenzofurans;

(e)(i) The determination of Polychlorinated Biphenyls in Transformer Fluids and Waste Oils, EPA-600/4-81-045; and

(ii) Analysis of Polychlorinated Biphenyls in Mineral Insulating Oils by Gas Chromatography, ASTM Standard D 4059-86.

(4) Substantial changes to the testing methods described above shall be made only after the department has provided adequate opportunity for public review and comment on the proposed changes. The department may, at its discretion, schedule a public hearing on the proposed changes.

(5) Equivalent testing methods. Any person may request the department to approve an equivalent testing method by submitting a petition, prepared in accordance with WAC 173-303-910(2), to the department.

[Statutory Authority: Chapters 70.105 and 70.105D RCW, 40 CFR Part 271.3 and RCRA § 3006 (42 U.S.C. 3251). 91-07-005 (Order 90-42), § 173-303-110, filed 3/7/91, effective 4/7/91. Statutory Authority: Chapter 70.105 RCW. 89-02-059 (Order 88-24), § 173-303-110, filed 1/4/89; 86-12-057 (Order DE-85-10), § 173-303-110, filed 6/3/86; 84-14-031 (Order DE 84-22), § 173-303-110, filed 6/27/84. Statutory Authority: Chapter 70.105 RCW and RCW 70.95.260. 82-05-023 (Order DE 81-33), § 173-303-110, filed 2/10/82.]

WAC 173-303-120 Recycled, reclaimed, and recovered wastes. (1) This section describes the requirements for persons who recycle materials that are solid wastes and dangerous. Except as provided in subsections (2) and (3) of this section, dangerous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of subsection (4) of this section. Dangerous wastes that are recycled will be known as "recyclable materials."

(2)(a) The following recyclable materials are solid wastes and sometimes are dangerous wastes. However, they are subject only to the requirements of (b) of this subsection, WAC 173-303-050, 173-303-145 and 173-303-960:

(i) Industrial ethyl alcohol that is reclaimed;

(ii) Used batteries (or used battery cells) returned to a battery manufacturer for regeneration;

(iii) Used oil that exhibits one or more of the characteristics or criteria of dangerous waste and is recycled in some manner other than:

(A) Being burned for energy recovery; or

(B) Being used in a manner constituting disposal, except when such use is by the generator on his own property;

(iv) Scrap metal;

(v) Fuels produced from the refining of oil-bearing dangerous wastes along with normal process streams at a petroleum refining facility if such wastes result from normal petroleum refining, production, and transportation practices;

(vi) Oil reclaimed from dangerous waste resulting from normal petroleum refining, production, and transportation

6

The Boeing Company
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November 11, 1993

Document Processing Center (TS-790)
Attn: Section 8 (e) Coordinator
Office of Toxic Substances
U.S. Environmental Protection Agency
401 "M" Street, S. W.
Washington, D.C. 20460

BOEING

ATTENTION SECTION 8 (e) COORDINATOR

The Boeing Company submits the following documents pursuant to the TSCA Section 8 (e).

The documents are:

Evergreen Analytical Services, Inc. Laboratory Report

Evergreen Analytical Services, Inc. Test Results

MSDS for ICI Fiberite 934 Resin on Carbon Fiber Prepreg (test sample 3704)

MSDS for Hexcel Corp. F593 Prepreg (test sample 3709)

The tested prepreg products and their chemical components meeting Washington State dangerous waste categorization are:

1. ICI Fiberite 934 Resin on carbon fiber prepreg

Carbon/graphite fiber		
Glass scrim		
Epoxy resins		
4,4'sulfonyl dianiline	CAS#	80-08-0
Acetone		67-64-1

2. Hexcel Corporation F593 prepreg

Fibrous glass	CAS#	65997-17-3
Ceramic		12788-79-3
Aramid		26125-61-1
Polyethylene		9002-88-4
Quartz		14808-60-7
Graphite		7782-42-5
Silicon Carbide		409-21-2
Aluminum		7429-90-5
Nickel(metallic)		7440-02-0
Copper		7440-50-8

Acetone	67-64-1
Methyl Ethyl Ketone	78-93-3
Ethanol, 2-methoxy	109-86-4
Polyfunctional Epoxy	28768-32-3
Bisphenol A	80-05-7
Aliphatic Amine	6364-17-6
Aliphatic Amine	43057-68-7
Silicon Dioxide	7631-86-9

BOEING

The study is described as follows:

Waste analysis of uncured prepreg consisted of a 96 hour static acute fish toxicity test. In this test, a predetermined amount of test material is immersed in water for a fixed amount of time. Fish are then exposed to the water to determine if anything that dissolved from the test material is toxic to fish.

Conclusion:

A waste material would be designated a dangerous waste in the state of Washington if greater than 11 cumulative deaths out of 30 test organisms occurred within 96 hours at a concentration of 1000 mg/l. The two (2) test materials submitted showed 100% mortality of the fish.

Submitted by:

Karen Morris-Fine

Karen Morris-Fine, Ph.D.
Manager Toxicology/TSCA/Epidemiology
(206) 393-4757, 7E-HM

EVERGREEN ANALYTICAL SERVICES, INC.
12831 NE 21st Place • Bellevue, WA 98005
(206) 882-2672

LABORATORY REPORT

TOMER:

Jeff Reitan
Analytical Resources, Inc.
333 Ninth Avenue North
Seattle, WA 98109-5187

LABORATORY USE ONLY
LAB #: 4262-4268
REPORT DATE 10/21/93
CUSTOMER P.O. #

EAS No.: 4262-4268 Received: 10/7/93
Client Sample ID: ARI No. F181 A-G, Boeing No. 3704-3710

TEST PROCEDURE:

The samples were tested for toxic properties in accordance with Washington State Department of Ecology guidelines in "Biological Testing Methods. Static Acute Fish Toxicity Test," DOE 80-12, Revised June 1991.

TEST DETAILS:

The samples were weighed into individual Mason jars, extracted for six hours on a rotary extractor, then placed into separate aquariums to give a final concentration of 1000 ppm; both the samples and controls were run in triplicate. The test organisms were rainbow trout (Oncorhynchus mykiss). The organism length ranged from 40 to 52 mm, giving a long-to-short ratio of 1.24. The average length was 43.6 mm; the average weight was 1.27 grams. Ten fish were used in each aquarium, giving a loading of 0.33 grams/liter. The test was started October 15, 1993 at 1900 hours and completed October 19, 1993 at 1900 hours.

TEST RESULTS:

The test results are shown on the attached pages, along with aquarium water chemical analysis.

Respectfully submitted,

Craig E. Delphey, Ph.D.
President

EVERGREEN ANALYTICAL SERVICES, INC.
12831 NE 21st Place • Bellevue, WA 98005
(206) 882-2672

TEST RESULTS

EAS No.	ARI No.	Boeing No.	Concentration*	Mortalities	% Mortality
4262	F181 A	3704	1000	30 / 30	100
4263	F181 B	3705	1000	3 / 30	10
4264	F181 C	3706	1000	0 / 30	0
4265	F181 D	3707	1000	9 / 30	30
4266	F181 E	3708	1000	0 / 30	0
4267	F181 F	3709	1000	30 / 30	100
4268	F181 G	3710	1000	0 / 30	0
Controls	-	--	--	0 / 30	0

* Value in ppm (mg/1)

Respectfully submitted,

Craig E. Delphey, Ph.D.
President

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST

Laboratory: Evergreen Analytical
Analyst: C. Delphey

Industry/Toxicant: ARI / Boeing
Address: Seattle WA
Collector:
Date Sample Collected:

Beginning Date: 10/15/93 Time: 1900 hrs
Ending Date: 10/19/93 Time: 1900 hrs
Test Organism: Rainbow trout (O. mykiss)
Required Test Temperature Range: 12°C ± 1.0°C

Laboratory Reference Number	Test Container No.	Conc. (mg/l)	Number of Cumulative Deaths					Dissolved Oxygen (mg/l)					pH 25 C					Temperature (C)					Total Hardness (mg/l as $CaCO_3$)		Total Alkalinity (mg/l as $CaCO_3$)		Conductivity uMHOS/cm	
			0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96	0	96	0	96
4262	1	1000	0	0	7	10	10						7.3				7.1	12.0	12.3	12.2	12.3	12.3	45	46	35	36	170	170
↓	2	1000	0	0	5	10	10	10.3	9.6	8.9	8.4	—	7.3				7.0						45	45	35	34	170	170
↓	3	1000	0	0	5	10	10						7.2				7.0						46	46	34	33	170	170
4263	4	1000	0	0	0	0	1						7.4				7.1						46	46	35	35	170	170
↓	5	1000	0	0	0	0	1	10.1	9.5	8.8	8.4	7.9	7.3				7.1						44	44	33	34	160	160
↓	6	1000	0	0	0	0	1						7.3				7.1						45	45	34	34	170	160
4264	7	1000	0	0	0	0	0						7.3				7.1						44	44	33	34	170	170
↓	8	1000	0	0	0	0	0	10.2	9.6	8.7	8.1	7.1	7.3				7.1						45	44	33	35	170	170
↓	9	1000	0	0	0	0	0						7.2				7.0						44	45	34	34	170	170
4265	10	1000	0	0	0	0	4						7.3				7.1						45	44	33	34	170	170
↓	11	1000	0	0	0	0	3	10.3	9.6	8.8	8.2	7.6	7.4				7.1						44	44	35	35	170	170
↓	12	1000	0	0	0	0	2						7.4				7.2						44	44	33	35	160	170
4266	13	1000	0	0	0	0	0						7.3				7.1						43	43	34	33	170	170
↓	14	1000	0	0	0	0	0	10.2	9.6	8.8	8.1	7.5	7.4				7.1						45	44	35	34	170	170
↓	15	1000	0	0	0	0	0						7.4				7.1	↓	↓	↓	↓	↓	44	44	34	33	160	170

Sample Description: #4262 - 3704 #4263 - 3705 #4264 - 3706 #4265 - 3707 #4266 - 3708

Average Weight: 1.27 g Mean Length: 43.6 mm Longest: 52 mm Shortest: 40 mm Ratio (long/short): 1.24

Number of organisms per chamber: 10 Ratio of flesh to water: 0.33 g/l

Comments:

Method on File with the Department of Ecology

GENERAL PROCEDURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST

Data Verified By: Craig E. Delphey Date: 10/21/93

EWH > 10/30

DW > 11/30

ECY 050-1-40

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST

Laboratory: Evergreen Analytical
Analyst: C. Deffner

Industry/Toxicant: ARI / Boeing
Address: Seattle WA
Collector:
Date Sample Collected:

Beginning Date: 10/15/93 Time: 1900 hrs
Ending Date: 10/19/93 Time: 1900 hrs
Test Organism: Rainbow trout (O. mykiss)
Required Test Temperature Range: 12°C ± 1.0°C

Laboratory Reference Number	Test Container No.	Conc. (mg/l)	Number of Cumulative Deaths					Dissolved Oxygen (mg/l)					pH 25 C					Temperature (C)					Total Hardness (mg/l as $CaCO_3$)		Total Alkalinity (mg/l as $CaCO_3$)		Conductivity uMHOS/cm	
			0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96	0	96	0	96
4267	16	1000	0	0	5	10	10						7.3				7.1	12.0	12.3	12.2	12.3	12.3	45	45	34	35	170	170
	17	1000	0	0	6	10	10	10.1	9.0	7.5	7.0	—	7.3				7.0						44	44	34	35	170	170
↓	18	1000	0	0	4	10	10						7.3				7.0						44	44	34	34	170	170
4268	19	1000	0	0	0	0	0						7.3				7.1						43	43	34	34	170	170
	20	1000	0	0	0	0	0	10.3	9.2	8.5	8.0	7.4	7.3				7.1						42	45	34	34	170	170
↓	21	1000	0	0	0	0	0						7.4				7.0						43	44	34	34	170	170
Controls	22	—	0	0	0	0	0						7.3				7.1						43	44	35	34	170	170
	23	—	0	0	0	0	0	10.1	9.3	8.7	8.4	7.9	7.3				7.1						44	44	34	34	160	170
↓	24	—	0	0	0	0	0						7.3				7.0	↓	↓	↓	↓	↓	44	45	34	34	170	170

Sample Description: #4267 - 3709 #4268 - 3710
Average Weight: 1.27 g Mean Length: 43.6 mm Longest: 52 mm Shortest: 40 mm Ratio (long/short): 1.24
Number of organisms per chamber: 10 Ratio of flesh to water: 0.33 g/l
Comments:

Method on File with the Department of Ecology
GENERAL PROCEDURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST

Data Verified By: Gary E Deffner Date: 10/21/93

EWH > 10/30 ← #4267 not tested @ 10
DW > 11/30

3709

MATERIAL SAFETY DATA SHEET

NA

N/AVA = Not Available N/APP = Not Applicable N/REG = Not Regulated

SECTION I: MATERIAL AND MANUFACTURER IDENTIFICATION

MANUFACTURER:
Hexcel Corporation
11555 Dublin Boulevard
Dublin, CA 94568

EMERGENCY TELEPHONE NUMBERS:
(800) 433-5072 (Except California)
(800) 367-7527 (California Only)
(800) 343-4467 (Canada Only)

INFORMATION TELEPHONE NUMBER:
(510) 828-4200

TRADE NAME AND SYNONYMS: F593 Prepreg

PRODUCT IDENTIFICATION NUMBER: US/DOT and Canada/TDG - N/REG

PRODUCT USE: Composite Structural and Non-Structural Fabrication

CHEMICAL FAMILY: Epoxy Resin Impregnated Material: Aramid (Kevlar®), Ceramic (Nextel®), Fiberglass, Aluminum Coated Fiberglass (Thorstrand®), Graphite, Nickel Coated Graphite (CYCOM® NCG Fiber-Sized), Graphite Interwoven with Nickel Coated Copper Wire (Weav-rite®), Polyethylene (Spectra®), Quartz or Silicon Carbide (Nicalon®).

SECTION II: HAZARDOUS INGREDIENTS

CAS # / DOT #	MATERIAL OR COMPONENT	% BY WEIGHT	OSHA(PEL) (STEL) / ACGIH(TLV) (STEL)	LD50 (Species/Route) / LC50 (Species/Route)
	The percent will vary depending on which fabric or fiber used, the resin system variation and the amount of coating applied:			
65997-17-3 N/REG	Fibrous Glass (Canada WHMIS/HPA listed chemical.)	35-70	15mg/m³(Total) 5mg/m³(Respirable) 10mg/m³	N/AVA N/AVA
12788-79-3 N/REG	Ceramic (California Prop. 65 listed carcinogen for airborne particles of respirable size.)	35-70	15mg/m³(Total) 5mg/m³(Respirable) 10mg/m³	N/AVA N/AVA
26125-61-1 N/REG	Aramid	35-60	15mg/m³(Total) 5mg/m³(Respirable) 10mg/m³	>7,500mg/kg (orl-rat) N/AVA

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MHS

SECTION II: HAZARDOUS INGREDIENTS (CON'T)

9002-88-4 N/REG	Polyethylene	35-60	15mg/m³(Total) 5mg/m³(Respirable) 10mg/m³	N/AVA N/AVA
14808-60-7 N/REG	Quartz (California Prop. 65 and NTP listed carcinogen; Canada WHMIS/HPA listed chemical.)	55-70	0.1mg/m³ (Respirable) 0.1mg/m³ (Respirable)	N/AVA N/AVA
7782-42-5 N/REG	Graphite (Synthetic fiber)	10-74	10mg/m³(Total) 5mg/m³(Respirable) N/AVA	N/AVA N/AVA
409-21-2 N/REG	Silicon Carbide	55-75	10mg/m³ 10mg/m³	N/AVA N/AVA
7429-90-5 N/REG	Aluminum (Only for Aluminum coated fabric; based on total fabric weight. Canada WHMIS/HPA and SARA, Title III, Sect. 313 listed chemical.)	15-30	15mg/m³(Total) 5mg/m³(Respirable) 10mg/m³	N/AVA N/AVA
7440-02-0 N/REG	Nickel (Metallic) (Only for Nickel coated fabric; based on total fabric weight.)	23-34	1mg/m³ 1mg/m³	N/AVA N/AVA
	(Only for Nickel coated Copper wire interwoven into fabric; based on total fabric weight.)	3-6	1mg/m³ 1mg/m³	N/AVA N/AVA
	(California Prop. 65, NTP and IARC listed carcinogen; Canada WHMIS/HPA and SARA, Title III, Sect. 313 listed chemical.)			
7440-50-8 N/REG	Copper (Only for Nickel coated Copper wire interwoven into fabric; based on total fabric weight. Canada WHMIS/HPA and SARA, Title III, Sect. 313 listed chemical.)	9-15	1mg/m³ 1mg/m³	N/AVA N/AVA

SECTION II: HAZARDOUS INGREDIENTS (CON'T)

67-64-1 1090	Acetone (Canada WHMIS/HPA and SARA, Title III, Sect. 313 listed chemical.)	1-3	750 PPM(TWA) 1000 PPM(STEL) 750 PPM(TWA) 1000 PPM(STEL)	9,750mg/kg (orl-rat) N/AVA
78-93-3 1193	Methyl Ethyl Ketone (Canada WHMIS/HPA and SARA, Title III, Sect. 313 listed chemical.)	2-5	200 PPM(TWA) 300 PPM(STEL) 200 PPM(TWA) 300 PPM(STEL)	2,737mg/kg (orl-rat) 40g/m³/2H (ihl-mus)
109-86-4 1188	Ethanol, 2-Methoxy (California Prop. 65 listed reproductive toxin; Canada WHMIS/HPA and SARA, Title III, Sect. 313 listed chemical.)	0-2	25 PPM(TWA) (Skin) 5 PPM(TWA) (Skin)	2,460mg/kg (orl-rat) 1500 PPM/7H (ihl-rat)
28768-32-3 N/REG	Polyfunctional Liquid Epoxy Resin (As skin and eye irritant and skin sensitizer.)	7-53	N/AVA N/AVA	>10,000mg/kg (orl-rat) N/AVA
80-05-7 N/REG	Bisphenol A (As skin and eye irritant and possible sensitizer; Canada WHMIS/HPA and SARA, Title III, Sect. 313 listed chemical.)	0.5-3	N/AVA N/AVA	3,250mg/kg (orl-rat) N/AVA
6364-17-6 N/REG	Aliphatic Secondary Naphalene Amine	1-15	N/AVA N/AVA	251mg/kg (orl-rat) N/AVA
43057-68-7 N/REG	Aliphatic Secondary Naphalene Amine	0.5-16	N/AVA N/AVA	399mg/kg (orl-rat) N/AVA
7631-86-9 N/REG	Silicon Dioxide, Amorphous (Canada WHMIS/HPA listed chemical.)	0-1.5	10mg/m³ 6mg/m³	3,160mg/kg (orl-rat) N/AVA

NOTES: Exposure limits expressed for dust are for potential exposures during machining of the cured product.

Where applicable, listings for SARA Title III Section 313, California Proposition 65 and Canada WHMIS/HPA are noted.

SECTION III: PHYSICAL DATA

Physical State	Resin impregnated material.
Odor	No distinctive odor.
Odor Threshold	N/APP
Appearance	Coated fabric or fiber.
Specific Gravity (Water=1)	N/AVA = 1.22 FB
Volatile [Percent (%) by Weight]	0-6
Vapor Pressure (mm Hg.)	N/APP
Vapor Density (Air=1)	N/APP
Evaporation Rate (_____=1)	N/APP
Boiling Point (°F/°C)	N/APP
Melting Point (°F/°C)	N/APP
Freezing Point (°F/°C)	N/APP
Ph	N/AVA
Solubility in Water	N/AVA
Coefficient of Water/Oil Distribution	N/AVA

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

Flash Point (°F/°C. Method Used)	N/APP
Lower Explosive Level (% Volume) LEL	N/APP
Upper Explosive Level (% Volume) UEL	N/APP
Auto-Ignition Temperature (°F/°C)	N/AVA
Sensitivity to Impact/Shock	N/AVA
Sensitivity to Static Discharge	N/AVA
Hazardous Combustion Products	May form toxic materials; avoid inhalation.
Flammable/Combustible (Yes/No)	Yes.
If Yes, Under What Conditions?	Temperature and conditions, N/AVA
Extinguishing Media	CO_2, Dry Chemical, Water or Foam.
Special Fire Fighting Procedures	Self-contained breathing apparatus and protective clothing.
Unusual Fire and Explosion Hazards	Dust from machining Aluminum coated Fiberglass should not be exposed to moisture as it may liberate Hydrogen Gas and form explosive air mixtures.

SECTION V: TOXICOLOGICAL AND HEALTH HAZARD DATA

Exposure Limits of Product	N/AVA
Irritancy	Possible contact irritation.
Sensitization	Possible sensitizer.
Route of Entry	
Skin Contact	Possible irritation.
Skin Absorption	N/AVA
Eye Contact	Possible irritation.
Inhalation	Possible irritation.
Ingestion	N/AVA
Single Exposure Effects	Contact may cause irritation to the affected area.
Repeated/Prolonged Exposure Effects	
Toxicological Synergism	N/AVA
Carcinogenicity	Ceramic (for airborne particles of respirable size) a California Prop. 65 listed carcinogen, Quartz a California Prop. 65 and NTP listed carcinogen and Nickel a California Prop. 65, NTP and IARC listed carcinogen when coated on or woven into fabric, when applicable.
Mutagenicity	N/AVA
Teratogenicity	N/AVA
Reproductive Toxicity	Ethanol, 2-Methoxy a California Prop. 65 listed reproductive toxin.

SECTION VI: REACTIVITY DATA

Chemical Stable	Yes.
Conditions To Avoid	None anticipated.
Incompatible Substances	Yes.
Materials To Avoid	Strong acids, bases and oxidizing agents.
Conditions of Reactivity	Hazardous polymerization will not occur.
Conditions to Avoid	None anticipated.
Hazardous Decomposition Products	May form toxic materials; avoid inhalation.

SECTION VII: FIRST AID MEASURES

Skin	Immediately wash the affected areas thoroughly with plenty of water or soap and water. Remove clothing if contaminated (Wash before re-use). If irritation persists or dermatitis develops, get medical attention.
Eye	Immediately flush with plenty of water for at least 15 minutes; contact a physician.
Inhalation	Remove to fresh air. Aid breathing; get medical attention, if necessary.
Ingestion	If conscious, give large amounts of water. Contact a physician immediately.

SECTION VIII: PREVENTIVE MEASURES

Personal Protective Equipment	
Gloves	Impervious materials.
Respiratory	Use an approved organic vapor respirator when the product is heated to 120°F(49°C) or above and an approved dust respirator when machining the cured product.
Eye	Safety glasses or goggles.
Footwear	Wear appropriate footwear.
Clothing	Sufficient to cover skin areas.
Other	Emergency eyewash and barrier creams.
Engineering Controls	Local exhaust-sufficient to control vapors and/or dust generated.
Spill and Leak Procedures	N/APP
Storage Requirements	See label on container for the proper temperature; maintain sealed against contamination from dirt and moisture.
Handling Procedures	Handle in a well ventilated area; local exhaust is recommended. Use personal protective equipment to prevent contact with the product. Sublimation of the product will cause a purple discoloration.
Shipping Information	In accordance with all applicable regulations.
Waste Disposal Method	Comply with all applicable regulations. Contact an appropriate waste disposal contractor and environmental agency.
Special Precautions	Handling practices for Aluminum coated Fiberglass, when applicable, must be in accordance with NFPA 65, Chapters 1-5. Airborne Graphite fibers and/or dust, when applicable, can create a severe electrical-short hazard.

SECTION IX: MSDS PREPARATION

Prepared By: Donald L. Cross, Hexcel Corporate Safety & Health Manager
Effective Date: May 1, 1992

Test sample # 3704

ICI COMPOSITES INC.
MATERIAL SAFETY DATA SHEET

DC 0114 N/A

COMPANY NAME: ICI FIBERITE
ADDRESS : 501 WEST THIRD ST
CITY ST ZIP : WINONA, MN 55987

CONTACT: BRAD DIERINGER
PHONE : 507 - 454 - 3611
FAX : 507 - 454 - 5105
TELEX : 507 - 454 - 5105

EFFECTIVE DATE: 02 / 25 / 92
PRINT DATE : 02 / 25 / 92

PRODUCT SHORT NAME: 934/CG
PART NUMBER :

PRODUCT NAME: 934 RESIN ON CARBON/GRAPHITE FIBERS & GLASS SCRIM
EPOXY/CARBON PREPREG W/GLASS SCRIM

MSDS NUMBER: 86070710 REV:

SECTION 1 HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	C.A.S. NO.	%	PEL	TLV
1 Carbon/graphite fiber	various	30-70	n/a	n/a
2 Glass scrim	not avail	2-25	15 mg/m3	10 mg/m3
3 Epoxy resins	withheld	15-30	n/a	n/a
4 4,4'-Sulfonyl dianiline	80-08-0	*	n/af	n/a
5 Acetone	67-64-1	0-2	750 ppm	750 ppm

* DDS composition withheld as a trade secret.

SECTION 2 PHYSICAL DATA

APPEARANCE AND ODOR: Black impregnated tape/ no odor
SPECIFIC GRAVITY: 1.2-2.2
% VOLATILE BY WEIGHT: < 2 %
FLAMMABLE LIMITS: Lel = NA Uel = NA
VAPOR PRESSURE @ DEG. F: NA
VAPOR DENSITY: NA
CONSTANT TEMPERATURE STABILITY (CTS) VALUE: >200 deg F

SECTION 3 FIRE AND EXPLOSION HAZARDS

FLASH POINT: NA

EXTINGUISHING MEDIA: Carbon dioxide, dry chemica, foam, water

SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: Use self-contained breathing apparatus. Exothermic polymerization may occur. Incineraion may generate airborne carbon fibers which may cause electrical malfunction.

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19

ICI COMPOSITES INC.
MATERIAL SAFETY DATA SHEET

934 RESIN ON CARBON/GRAPHITE FIBERS & GLASS SCRIM

SECTION 4 REACTIVITY DATA

INCOMPATIBILITY: Strong oxidizers, strog acids, strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS: COx, NOx, BF3, amines, phenols, incompletely burned hydrocarbons

POLYMERZATION HAZARD: Exothermic polymerization can occur with rapid or excessive heat. When heated to decomposition toxic emissions are released.

EXOTHERM FIGHTING PROCEDURES: Dissipate heat by spreading material apart and dousing with water. Contain emissions using local exhaust.

SECTION 5 SPILL, LEAK, AND DISPOSAL

SPILL OR LEAK PROCEDURE: Pick up and use uncontaminated material. Contaminated material should be picked up and disposed of properly.

WASTE DISPOSAL METHOD: Dispose of in accordance with local, state, and federal regulations, which may vary by location. Questions concerning disposal should be directed to Fiberite's Safety, Health, & Environmental Affairs Department for evaluation on a case by case basis.

SECTION 6 HEALTH HAZARD DATA

SIGNS AND SYMPTOMS OF EXPOSURE: Epoxy resins cause irritation of skin and eyes, and possible dermatitis or allergy/sensitization. Vapors coming off heated material may cause irritation. Existing allergies may be aggravated. Epoxies are commonly mutagenic to bacteria. DDS causes severe skin sensitization, minor body ailments, blood disorders, and may aggravate existing allergies (to sulfonamides) or enzyme (glucose-6-phosphate dehydrogenase) deficiency. DDS has been assayed by NCI for carcinogenesis with mixed positive and negative results. Fibers cause mechanical skin irritation and possible respiratory irritation. Excessive inhalation of acetone vapors can causenasal and respiratory irritation, headache, CNS depression and narcosis.

PRIMARY/POTENTIAL ROUTES OF EXPOSURE: Dermal, inhalation

POTENTIAL CARCINOGENS PRESENT (NTP, IARC, or OSHA): none

SECTION 7 FIRST AID

20

ICI COMPOSITES INC.
MATERIAL SAFETY DATA SHEET

934 RESIN ON CARBON/GRAPHITE FIBERS & GLASS SCRIM

EYES: Flush with water for 15 mintes, consult physician.

SKIN: Wash with soap and water. Remove carbon fiber splinters with tweeers or a sterile needle. Cool water rinsing helps remove glass fibers.

INHALATION: Move to fresh air.

INGESTION: Unlikely to be a problem.

SECTION 8 SPECIAL HANDLING INFORMATION

VENTILATION: Good general ventialtion and local exhaust recommended, particularily where grinding or heating operations occur.

RESPIRATORY PROTECTION: Usually not needed. Use NIOSH/MSHA approved respirators if TLV's are exceeded.

PROTECTIVE CLOTHING: Impervious rubber gloves, clean body-covering clothing.

EYE PROTECTION: Safety glasses

STORAGE: Store at or below 10 deg F

SECTION 9 REGULATORY INFORMATION

SARA TITLE III INFORMATION

NO.	%	EHS RQ (lbs) (*1)	EHS TPQ (lbs) (*2)	Sec 313 (*3)	313 Category (*4)
5				x	

NO. Corresponds to the numbered ingredient on page one.
*1 = Reportable Quantity of Extremely Hazardous Substances, Sec. 302
*2 = Threshhold Planning Quantity, Extremely Hazardous Substances, Sec 302
*3 = Toxic Chemical, Sec 313
*4 = Category Sec 313 (40 CFR 372.65), used on Toxic Release Inventory Form

TSCA (TOXIC SUBSTANCE CONTROL ACT) REGULATIONS (40 CFR 710): All components are listed in compliance with the Toxic Substances Control Act.

TRANSPORTATION INFORMATION:
D. O. T.: Not regulated

I. A. T. A.: Not regulated

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Mr. George A. Abel
Environmental Protection Agency, Region 10
Air and Toxics Division
1200 Sixth Avenue
Seattle, WA 98101

January 31, 1994
OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Dear : George

FYI Number:8EHQ-1193-12753 A
Submission Date:11/11/93
CAS #:6364-17-6
Chemical Name:Aliphatic Secondary Naphalene Amine

Recently, the Risk Analysis Branch of OPPTS received TSCA § 8(e) toxicological information which may be of interest to your program and/or regional office. If you require more information you may wish to contact the TSCA Docket and Administrative Record at 202-260-7099.

Thank you,

Paul N. McMahon
RAB/CSRAD/OPPTS

2·10·94 Called Chris Colts
206-553-8577
She had asked about
8(e) information

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Karen Morris-Fine, Ph.D.
Manager Toxicology/TSCA/Epidemiology
The Boeing Company
P.O. Box 3707
Seattle, Washington 98124-2207

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MAR 15 1994

This letter formally acknowledges EPA's receipt of information submitted by your organization under Section 8(e), the "substantial risk" information reporting provision of the Toxic Substances Control Act (TSCA). For your reference, copies of the first page(s) of your submission(s) are enclosed and display the TSCA Section 8(e) Document Control Number (i.e., 8EHQ-0000-0000 Init.) assigned by EPA to your submission(s). Please refer to this cited number when submitting follow-up or supplemental information.

Please note that all submitted correspondence will be placed in the public files unless confidentiality is claimed according to the procedures outlined in Part X of EPA's TSCA Section 8(e) policy statement (43 FR 11110, March 16, 1978).

Confidential submissions submitted pursuant to the TSCA Section 8(e) Compliance Audit Program (CAP) should already contain information supporting confidentiality claims, because substantiation of CBI claims is required at the same time the 8(e) CAP is submitted to EPA. (If not done so already, please ensure that this information is provided to the Agency). When substantiating any/all claims, answer the questions detailed in the following attachment.

For NON-CAP submissions, any confidentiality claims should be supported by submission of information as described in the attachment(s).

12753 A

CECATS\TRIAGE TRACKING DBASE ENTRY FORM

CECATS DATA:
Submission # 8EHQ- 1193 -12753 SEQ. A

TYPE: (INT) SUPP FLWP

SUBMITTER NAME: Boeing Company

INFORMATION REQUESTED: FLWP DATE:
0501 NO INFO REQUESTED
0502 INFO REQUESTED (TECH)
0503 INFO REQUESTED (VOL ACTIONS)
0504 INFO REQUESTED (REPORTING RATIONALE)

DISPOSITION:
(0639) REFER TO CHEMICAL SCREENING
0678 CAP NOTICE

VOLUNTARY ACTIONS:
(0401) NO ACTION REPORTED
0402 STUDIES PLANNED/UNDERWAY
0403 NOTIFICATION OF WORKER/OTHERS
0404 LABEL/MSDS CHANGES
0405 PROCESS/HANDLING CHANGES
0406 APP./USE DISCONTINUED
0407 PRODUCTION DISCONTINUED
0408 CONFIDENTIAL

SUB. DATE: 11/11/93 OTS DATE: 11/12/93 CSRAD DATE: 11/29/93

CHEMICAL NAME:

	CAS#
Ceramic → 12788-79-3	65997-17-3
Aliphatic Secondary Naphalene Amine → 6364-17-6	26125-61-1
Aliphatic Secondary Naphalene Amine → 43057-68-7	9002-88-4
	14808-60-7

7440-50-8	80-08-0
7782-42-5	67-64-1
409-21-2	78-93-3
7429-90-5	109-86-4
7440-02-0	28768-32-3
	80-05-7
	7631-86-9

INFORMATION TYPE:		P F C
0201	ONCO (HUMAN)	01 02 04
0202	ONCO (ANIMAL)	01 02 04
0203	CELL. TRANS (IN VITRO)	01 02 04
0204	MUTA (IN VITRO)	01 02 04
0205	MUTA (IN VIVO)	01 02 04
0206	REPRO/TERATO (HUMAN)	01 02 04
0207	REPRO/TERATO (ANIMAL)	01 02 04
0208	NEURO (HUMAN)	01 02 04
0209	NEURO (ANIMAL)	01 02 04
0210	ACUTE TOX. (HUMAN)	01 02 04
0211	CHR. TOX. (HUMAN)	01 02 04
0212	ACUTE TOX. (ANIMAL)	01 02 04
0213	SUB ACUTE TOX (ANIMAL)	01 02 04
0214	SUB CHRONIC TOX (ANIMAL)	01 02 04
0215	CHRONIC TOX (ANIMAL)	01 02 04

INFORMATION TYPE:		P F C
0216	EPI/CLIN	01 02 04
0217	HUMAN EXPOS (PROD CONTAM)	01 02 04
0218	HUMAN EXPOS (ACCIDENTAL)	01 02 04
0219	HUMAN EXPOS (MONITORING)	01 02 04
(0220)	ECO/AQUA TOX	01 02 04
0221	ENV. OCCC/REL/FATE	01 02 04
0222	EMER INCI OF ENV CONTAM	01 02 04
0223	RESPONSE REQEST DELAY	01 02 04
0224	PROD/COMP/CHEM ID	01 02 04
0225	REPORTING RATIONALE	01 02 04
0226	CONFIDENTIAL	01 02 04
0227	ALLERG (HUMAN)	01 02 04
0228	ALLERG (ANIMAL)	01 02 04
0239	METAB/PHARMACO (ANIMAL)	01 02 04
0240	METAB/PHARMACO (HUMAN)	01 02 04

INFORMATION TYPE:		P F C
0241	IMMUNO (ANIMAL)	01 02 04
0242	IMMUNO (HUMAN)	01 02 04
[redacted]	CHEM/PHYS PROP	01 02 04
0244	CLASTO (IN VITRO)	01 02 04
0245	CLASTO (ANIMAL)	01 02 04
0246	CLASTO (HUMAN)	01 02 04
0247	DNA DAM/REPAIR	01 02 04
(0248)	PROD/USE/PROC	01 02 04
(0251)	MSDS	01 02 04
0299	OTHER	

TRIAGE DATA: NON-CBI INVENTORY
(YES (CONTINUE))
NO (DROP)
(DETERMINE)

ONGOING REVIEW
YES (DROP/REFER)
NO (CONTINUE)
REFER:

SPECIES
Rainbow Trout

TOXICOLOGICAL CONCERN:
LOW
MED
HIGH

USE: prepreg material

PRODUCTION:

COMMENTS: Non-CAP